

MICROCHIP ARRAYS OF REGULATORY GENES

Abstract of the Invention

Microarray technology is a fast-growing field of biomedical research, aiming to investigate changes in molecular features of hundreds of genes. The multiple parallel processing of information generated from matrices of huge numbers of loci on a solid substrate has allowed the gathering of gene signatures defining specific biological states. A new approach has been developed to facilitate this process wherein genes of the same regulatory modality are selected. The transcriptional regulation of these genes is related to the same control element, the E-box, defined by the sequence CACGTG. PCR products of selected regions of all known genes either binding to this sequence or whose expression is dependent on this binding, as well as genes interacting with E-box-binding genes and control genes, are arrayed on a nylon membrane or other appropriate microchip substrate, which is then used as an E-box-specific microarray. The transcriptionally regulated profile of E-box-related genes specific to a given cultured cell sample is then determined by unique labeled cDNAs probes produced from RNAs isolated from the culture of interest.